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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
CHOU, ALBERT T	

ART UNIT	PAPER NUMBER
2662	

DATE MAILED: 04/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/911,256	MELAMPY ET AL.	
	Examiner	Art Unit	
	Albert T. Chou	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 July 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-40* is/are pending in the application.

4a) Of the above claim(s) *5-13, 18-25, 30-38 and 39* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,14-17,26-29 and 40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 July 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-4, 14-17, 26-29 and 40, drawn to determine latency for real-time transport protocol data flows, classified in class 370, subclass 252.

II. Claims 5-7, 8-9 and 30-32, drawn to determine jitter for real-time transport protocol data flows, classified in class 370, subclass 516.

III. Claims 8-13, 20-24 and 33-39, drawn to determine lost packets for real-time transport protocol data flows, classified in class 370, subclass 394.

2. The inventions are distinct, each from the other because:

I. Latency is related to the time for the packet to get from one network node to the other network node resulted from the apparent response from one node to the other.

II. Jitter is related to the arrival time of packet varies.

III. Lost packets are related to some of packets that are lost or arrive so late they are discarded under the normal or abnormal conditions.

3. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II or III, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Mr. Scott Horstemeyer (Reg. No. 34,183) on Thursday, March 17, 2005 a provisional election was made without traverse to prosecute the invention of US Patent Application No. 09/911,256, claims 1-4, 14-17, 26-

29 and 40. Affirmation of this election must be made by applicant in replying to this Office action. Claims 5-13, 18-25, 30-38 and 39 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure. The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 14-16, 26-27 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Gruber et al. (US Patent Number: 5,450,394), hereinafter referred to as Gruber.

4. Regarding claims 1 and 14, Gruber teaches a method and a system of measuring delay parameters between nods A and B in a telecommunication network

(Figure 1; col. 3, lines 40-41; *A method for determining latency for real-time transport protocol data flows*), comprising the steps and means of:

- Node A sending to Node B a measurement containing timestamp value T1 (Figure 1; Col. 3, lines 42-45; *communicating between a first endpoint and a second endpoint*); Node B, in respond to the measurement cell, sending to Node A a reporting measurement cell containing timestamp T3 and a delay difference Td (Figure 1; Col. 3, lines 45-48);
- Node A has in its possession values T1, T3, T4 and Td (Figure 1; col. 5, lines 12-15) and will be able to determine the Round Trip Delay RTD as RTD = (T4-T1) – (T3-T2) (Figure 1; col. 5, lines 24-25; *measuring latency for a data flow between said first endpoint and said second endpoint*).

Regarding claims 2, 15 and 27, Gruber teaches the performance monitoring of ATM network at Nodes A and B (Figure 1; col. 4, lines 4-6; *said first endpoint and said second endpoint are multi-media routers*).

Regarding claims 3, 16 and 28, Gruber teaches test cells are used for the delay measurement (Col. 4, lines 23-26; a test data packet being used to perform said communication), which comprises the steps of:

- Node A sending to Node B a measurement containing timestamp value T1 (Figure 1; Col. 4, lines 67-68; *said first endpoint transmitting said test data packet to said second endpoint*);
- Node B, in respond to the measurement cell, sending to Node A a reporting measurement cell containing timestamp T3 and a delay difference Td (Figure

1; Col. 4, lines 6-8; *said second endpoint looping said test data packet back to said first endpoint*);

- Node A has in its possession values T1, T3, T4 and Td (Figure 1; col. 5, lines 12-15; *comparing when said test data packet was received by said first endpoint to when said test data packet was sent to said second endpoint*) and will be able to determine the Round Trip Delay RTD as RTD = (T4-T1) – (T3-T2) (Figure 1; col. 5, lines 24-25; *determining a round trip time*) and the cell Transfer delay CTD in one direction as Estimated CTD = RTD / 2 (Col. 5, lines 30-34; *and determining said latency based upon said round trip time*).

Regarding claim 26, Gruber teaches a system of measuring delay parameters between nods A and B in a telecommunication network (Figure 1; col. 3, lines 40-41; *A system for determining latency for real-time transport protocol data flows*). Gruber teaches Node A (Figure 1; Col. 3, lines 42-45; *a first endpoint)* is connected to Node B (Figure 1, col. 3, lines 45-48; *a second endpoint*). Gruber further teaches that to measure the delay parameters, Node A sends Node B a measurement containing timestamp value T1 (Figure 1; Col. 3, lines 42-45); Node B, in respond to the measurement cell, sending to Node A a reporting measurement cell containing timestamp T3 and a delay difference Td (Figure 1; Col. 3, lines 45-48). Node A has in its possession values T1, T3, T4 and Td (Figure 1; col. 5, lines 12-15) and will be able to determine the Round Trip Delay RTD as RTD = (T4-T1) – (T3-T2) (Figure 1; col. 5, lines 24-25; *measuring latency for a data flow between said first endpoint and said second endpoint*) and the cell Transfer delay CTD in one direction as Estimated CTD =

RTD / 2 (Col. 5, lines 30-34; *and determining said latency based upon said round trip time*). Gruber discloses Nodes A and B are connected to an ATM network (Figure 1; col. 1, line 10; col. 5, lines 5-6). Gruber does not expressly disclose Node A comprises a transceiver, a processor and the software stored with the ATM Node A to define functions to be performed by Node A. It is inherent that an ATM node, such as Node A, comprises multiple I/O ports (*a transceiver*) to transmit and receive the ATM cells, at least one hardware processor (*a processor configured by the software*) and software stored in the ATM node (*software stored within the first endpoint*) to define and execute the ATM functions in order to perform the measurements of the latency or other QoS parameters for a data flow from the first endpoint to the second endpoint.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 4, 17 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gruber et al. (US Patent Number: 5,450,394), hereinafter referred to as Gruber, in view of Schulzrinne et al. (RFC 1889 – RTP: A Transport Protocol for Real-Time Applications), hereinafter referred to as Schulzrinne.

Regarding claims 3, 16 and 28, Gruber teaches Node A sends Node B a measurement containing timestamp value T1 (Figure 1; Col. 4, lines 67-68; *first*

endpoint transmitting a send report to second endpoint comprising a timestamp representing the time first endpoint transmitted send report).

Gruber does not disclose expressly *extracting said timestamp from said send report and adding said timestamp to a receive report that is transmitted from said second endpoint to said first endpoint, wherein said receive report also comprises an estimate of how long it took after said first endpoint sent said send report, for said first endpoint to receive said receive report from said second endpoint', and dividing said estimate in two, resulting in said latency.*

Schulzrinne discloses the Last Sender Report LSR timestamp can be extracted from the LSR field of the receiver report of RTCP packet (Section 6.3.2; *extracting said timestamp from said send report and adding said timestamp to a receive report that is transmitted from said second endpoint to said first endpoint*). The Delay Since Last Sender Report DLSR is provided in the DLSR field of the receiver report of RTCP packet (Section 6.3.2; *wherein said receive report also comprises an estimate of how long it took after said first endpoint sent said send report, for said first endpoint to receive said receive report from said second endpoint)*. Schulzrinne discloses the source *(first endpoint*) can compute the round propagation delay to the receiver *(second endpoint*) by recording the time **A** when this reception report block is received (Section 6.3.1, last paragraph). Schulzrinne further discloses the source calculates the total round trip time using the last SR timestamp **LSR** field, and then subtracting this field to leave the round-trip propagation delay as **(A – LSR – DLSR)**, which is approximately

two times of one-way latency (Figure 2; Section 6.3.1, last paragraph; *and dividing said estimate in two, resulting in said latency*).

It would have been obvious to apply the timing information provided in LSR and DLSR fields of RTCP packet as taught by Schulzrinne in RFC 1889 to Gruber's Delay Monitoring System to calculate the round-trip delay, or one-way latency, since the first endpoint has already had all the required information in its possession.

7. Claims 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gruber et al. (US Patent Number: 5,450,394), hereinafter referred to as Gruber, in view of Clark (US Patent Number: 6,741,569).

Regarding claim 40, Gruber teaches a method and a system of measuring delay parameters between nods A and B in a telecommunication network (Figure 1; col. 3, lines 40-41; *A method for determining latency for real-time transport protocol data flows*). Gruber does not expressly disclose Node A comprises a transceiver, the software stored with the ATM Node A to define functions to be performed by Node A and the processor configured by the software to perform the steps of determining Jitter and lost packets for said RTO data flows.

Clark teaches a system for determining the quality of service (delay, jitter and lost packet), using real-time transport protocol, for multimedia communication network (Figure 2; col. 1, lines 8-9; *for determining latency for real-time transport protocol data flows*), comprising Voice over IP Gateway 200 (Figure 2; col. 5, lines 14-15; *a first*

endpoint), connected to Voice over IP Gateway 204 (Figure 1; col. 5, lines 18-19; *a second endpoint*), comprises:

- A Voice over IP Conversion Point 212 (Figure 2; col. 1, lines 28-30; *a transceiver*), which is a device that converts analog voice into packet format suitable for transmission over the network and converts the received voice packet from the network back to analog form and played to the user as an audible signal (Figure 2; col. 1, lines 35-41);
- A Voice Quality Monitor System, which is embedded in Voice over IP Gateway 200 (Figure 2; col. 5, lines 14-15; *a first endpoint*), comprises interrupt software routines such as Initialization 700, 100 ms ISR 710, 1 second ISR 720 and Reporting System 730 (Figure 7; col. 6, lines 36-50; *software stored defining functions to be performed by said first en point*) to perform the basic operation of Voice Quality Monitor 309;
- A Voice Quality Monitor 309 (Figures 3-4; col. 5, line 51; *a processor configured by software*), which receives the input from RTP layer, comprises a Packet Loss Model 401 to compute the packet loss quality (Figure 4; col. 8, lines 25-26; *determining lost packet for RTP data flows*), a Jitter Model 402 to compute voice quality due to jitter (Figure 4; col. 8, lines 34-35; *determining jitter for RTP data flows*) and a Delay Model 403 to compute voice quality due to delay or latency (Figure 4; col. 8, lines 40-41; *determining latency for RTP data flows*).

Gruber and Clark are analogous art because both of their inventions teach the method /system of monitoring or measuring the quality of service for multimedia communications systems. At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine both inventions in order to determine and measure the wide spectrum of QoS parameters for a multimedia network.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert T. Chou whose telephone number is 571-272-6045. The examiner can normally be reached on 8:30 - 17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571-272-3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AC

Albert T. Chou

March 21, 2005

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